



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,281	11/28/2003	Shinichiro Hashimoto	82478-2800	1152

7590 04/21/2005

Snell & Wilmer L.L.P.
Suite 1200
1920 Main Street
Irvine, CA 92614-7230

EXAMINER

ALEMU, EPHREM

ART UNIT PAPER NUMBER

2821

DATE MAILED: 04/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/724,281

Applicant(s)

HASHIMOTO ET AL.

Examiner

Ephrem Alemu

Art Unit

2821

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-79 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-10, 13-16, 25-34, 36-48, 50, 53-56, 65-71 and 73-79 is/are rejected.
- 7) ☒ Claim(s) 7, 11, 12, 17-24, 35, 49, 51, 52, 57-64 and 72 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6-18-04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

2. Claims 5 and 8 are objected to because of the following informalities:

In claim 1, line 2, insert --electrode-- after "first";

claim 5, line 2, "will a not" should be replaced with --will not--; and

claim 8, line 2, "provided or" should be replaced with --provided on--.

Claim 70 is objected because the claimed limitations do not set forth any method steps for the method claim recited in the preamble.

Applicant is required to make the necessary changes as suggested by examiner or correct it appropriately in order to correct minor typographical error. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-6, 8-10, 13-16, 25-34, 36-48, 50, 53-56, 65-71 and 73-79 are rejected under 35 U.S.C. 102(e) as being anticipated by Chien et al. (US Pub. 2003/0042855).

Art Unit: 2821

Re claims 1, 8 and 9, Chien discloses a plasma display panel device (Fig. 3) comprising;
a panel unit having a pair of a first electrode (i.e., sustain electrode X) and a second electrode (i.e., scan electrode Yi), and a third electrode (i.e., address electrode Ai) that intersects the electrode pair to define a discharge cell (10) (Figs. 1, 3; Page 1, paragraphs [0005]-[0007] & [0012]; wherein the electrode pair (i.e., sustain and scan electrodes X, Yi) is provided on a first substrate (1), and the third electrode (i.e., address electrode Ai) is provided on a second substrate (7) that is disposed facing the first substrate (1) across a discharge space), and

a drive unit (i.e., control unit 110) that drives the panel unit using a drive method having a write period (i.e., address period A1-A8) and a sustain period (SS1-SS8), by applying, in the sustain period, a voltage (i.e., first sustain pulse) to the third electrode (i.e., address electrode Ai) and a voltage (i.e., second sustain pulse) to the electrode pair (i.e., sustain and scan electrodes X, Yi), so as to generate a sustain discharge between the first and second electrodes (i.e., sustain and scan electrodes X, Yi) in the sustain period, wherein the drive unit changes a potential of the third electrode (i.e., address electrode Ai) during the sustain discharge (Figs. 3, 4, 7, page 1, paragraphs [0007], [0008], [0012]; Page 2, paragraphs [0029] – [0030]).

Re claims 2, 3, 4 and 5, Chien further discloses the change in the potential of the third electrode (i.e., address electrode Ai) during the sustain discharge is a decrease from a potential V1 (i.e. Vs) to a potential V2 (i.e., 0 V); and wherein the drive unit increases the potential of the third electrode (i.e., address electrode Ai) from a potential V0 (i.e., 0 V) to the potential V1 (i.e., Vs) in the sustain period (Fig. 7, page 1, paragraph [0012]; Page 2, paragraphs [0029] – [0030]; wherein the potentials V0 and V2 are equal and wherein the potentials V0 and V2 are set in a

Art Unit: 2821

range that will not cause a discharge to occur between the third electrode (i.e., address electrode Ai) and the first or second electrode (i.e., sustain and scan electrodes X, Yi) .

Re claims 6 and 10, Chien further discloses a waveform of the voltage applied to the third electrode (i.e., address electrode Ai) in the sustain period is a pulse waveform (i.e., first or second pulse), and the change in the potential of the third electrode (i.e., address electrode Ai) during the sustain discharge corresponds to a fall in the pulse waveform (i.e., during second sustain pulse); and wherein a waveform (i.e., first or second pulse) of the voltage applied to the electrode pair (i.e., sustain and scan electrodes X, Yi) in the sustain period has a slope requiring a duration T to at least one of rise and fall (Fig. 7, page 1, paragraph [0012]; Page 2, paragraphs [0029] – [0030]).

Re claims 13, 14, 15 and 16, Chien further discloses the voltage waveform applied to the electrode pair in the sustain period is a pulse waveform (i.e., first or second pulse) that alternates repeatedly between high and low potentials, the high periods being of equal duration to the low periods, wherein the voltage waveform applied to the first electrode is out of phase with the voltage waveform applied to the second electrode by a half cycle and the change in the potential of the third electrode occurs at the same time with voltage waveform applied to the electrode pair in the sustain period is a pulse waveform (i.e., first or second pulse) satisfies the pulse waveform being in a range of $T-0.15$ or -0.05 μsec to $T+0.25$ or $+0.15$ μsec after the voltage waveform applied to at least one of the first and second electrode begins to change (Fig. 7, page 1, paragraph [0012]; Page 2, paragraphs [0029] – [0030]; wherein the potential of the third electrode decreases from a potential V1 (i.e., Vs) to a potential V2 (i.e., 0 V) in the range).

Art Unit: 2821

Re claims 25, 28, 29 and 30, Chien discloses a plasma display panel device (Fig. 3), comprising:

a panel unit having a pair of a first electrode (i.e., sustain electrode X) and a second electrode (i.e., scan electrode Yi), and a third electrode (i.e., address electrode Ai) that intersects the electrode pair to define a discharge cell (10) (Figs. 1, 3; Page 1, paragraphs [0005]-[0007] & [0012]); and

a drive unit (i.e., control unit 110) that drives the panel unit using a drive method having a write period (i.e., address period A1-A8) and a sustain period (SS1-SS8), by applying, in the sustain period, a voltage (i.e., first sustain pulse) to the third electrode (i.e., address electrode Ai) and a voltage (i.e., second sustain pulse) to the electrode pair (i.e., sustain and scan electrodes X, Yi) from V0 (i.e., 0 V) to V1 (i.e., Vs) prior to the sustain discharge, and from V1 (i.e., Vs) to V2 (i.e., 0 V) after the sustain discharge, and the potentials V0 (i.e., 0 V), V1 (i.e., Vs) and V2 (i.e., 0 V) are set so that $V1 > V0$ and $V1 > V2$, or $V0 > V1$ and $V2 > V1$ (Figs. 3, 4, 7, page 1, paragraphs [0007], [0008], [0012]; Page 2, paragraphs [0029] – [0030]; wherein one of the electrodes in the pair is a scan electrode (Yi) and the other electrode in the pair is a sustain electrode (X), and the third electrode is a data electrode (i.e., address electrode Ai) and wherein a cycle of the voltage waveform applied to the third electrode in the sustain period is an integer multiple of a cycle of the voltage waveform applied to the electrode pair).

Re claims 26 and 27, Chien further discloses the drive unit increases or decreases the potential of the third electrode (i.e., address electrode Ai) from V0 to V1 prior to a first sustain discharge, sustains the potential V1, and decreases or increases the potential of the third electrode from V1 to V2 after a second sustain discharge that is subsequent to the first sustain

Art Unit: 2821

discharge (Figs. 3, 4, 7; abstract; Page 1, paragraphs [0007], [0008], [0012]; Page 2, paragraphs [0029] – [0030]).

Re claims 31 and 32, Chien further discloses a binding capacity of the first electrode (i.e., sustain electrode X) with the third electrode (i.e., address electrode Ai) is different from a binding capacity of the second electrode (i.e., scan electrode Yi) with the third electrode (i.e., address electrode Ai), and the drive unit increases the potential of the third electrode when a potential of the electrode in the pair with the greater binding capacity is high, wherein one of the electrodes in the pair is a scan electrode (Yi) and the other electrode in the pair is a sustain electrode (X), and the third electrode is a data electrode (i.e., address electrode Ai) (Figs. 3, 4, 7; abstract; Page 1, paragraphs [0007], [0008], [0012]; Page 2, paragraphs [0029] – [0030]).

Re claims 33 and 34, Chien discloses a plasma display panel device (Fig. 3), comprising:
a panel unit having a pair of a first electrode (i.e., sustain electrode X) and a second electrode (i.e., scan electrode Yi), and a third electrode (i.e., address electrode Ai) that intersects the electrode pair to define a discharge cell (10) (Figs. 1, 3; Page 1, paragraphs [0005]-[0007] & [0012]); and

a drive unit (i.e., control unit 110) that drives the panel unit using a drive method having a write period (i.e., address period A1-A8) and a sustain period (SS1-SS8), by applying, in the sustain period, a voltage (i.e., first sustain pulse) to the third electrode (i.e., address electrode Ai) and a voltage (i.e., second sustain pulse) to the electrode pair (i.e., sustain and scan electrodes X, Yi), so as to generate a sustain discharge between the first and second electrodes (i.e., sustain and scan electrodes X, Yi) in the sustain period, wherein the drive unit changes a potential of the third electrode (i.e., address electrode Ai) during the sustain discharge (Figs. 3, 4, 7; abstract;

Art Unit: 2821

Page 1, paragraphs [0007], [0008], [0011], [0012]; Page 2, paragraphs [0029] – [0030]; wherein the drive unit (i.e., control unit 110) including a detection and control subunits (i.e., which is inherently included in the control unit 110) operable to detect a characteristic of an image for display by the panel unit; and perform a control in the sustain period to change a potential of the third electrode (i.e., address electrode Ai) according to the detected characteristic and wherein the detected characteristic is a brightness average of the image).

Re claims 36, 37 and 38, Chien further discloses a waveform of the voltage applied to the third electrode (i.e., address electrode Ai) in the sustain period is a pulse waveform (i.e., first or second pulse), and the change in the potential of the third electrode (i.e., address electrode Ai) during the sustain discharge corresponds to a fall in the pulse waveform (i.e., during second sustain pulse); and wherein the voltage waveform (i.e., first or second pulse) applied to the third electrode (i.e., address electrode Ai) in the sustain period is in synchronization with the voltage waveform (i.e., first or second pulse) applied to the electrode pair (i.e., sustain and scan electrodes X, Yi) (Fig. 7, abstract; Page 1, paragraphs [0011], [0012]; Page 2, paragraphs [0029] – [0030]; wherein the control by the control subunit is conducted at a fall time of the voltage waveform applied to the third electrode in the sustain period).

Re claims 39, 40, 41 and 42, Chien discloses a plasma display panel device (Fig. 3), comprising:

a panel unit having a pair of a first electrode (i.e., sustain electrode X) and a second electrode (i.e., scan electrode Yi), and a third electrode (i.e., address electrode Ai) that intersects the electrode pair to define a discharge cell (10) (Figs. 1, 3; Page 1, paragraphs [0005]-[0007] & [0012]); and

Art Unit: 2821

a drive unit (i.e., control unit 110) that drives the panel unit using a drive method having a write period (i.e., address period A1-A8) and a sustain period (SS1-SS8), by applying, in the sustain period, a voltage (i.e., first sustain pulse) to the third electrode (i.e., address electrode Ai) and a voltage (i.e., second sustain pulse) to the electrode pair (i.e., sustain and scan electrodes X, Yi), so as to generate a sustain discharge between the first and second electrodes (i.e., sustain and scan electrodes X, Yi) in the sustain period, wherein in the sustain period the drive unit performs a control in which a potential of the third electrode (i.e., address electrode Ai) is changed during the sustain discharge, so as to hasten the generation or to shift a region in which or to shift or lengthen a discharge path of the sustain discharge in comparison to when the potential is not changed (Figs. 3, 4, 7; abstract; Page 1, paragraphs [0007], [0008], [0011], [0012]; Page 2, paragraphs [0029] – [0030]).

Re claims 43, 44, 45, 46, 47, 48, 50, 53, 54, 55 and 56, given Chien's plasma display panel device as discussed above in claims 1, 2, 3, 4, 5, 6, 10, 13, 14, 15 and 16, the drive method for a plasma display panel device as claimed in claims 43, 44, 45, 46, 47, 48, 50, 53, 54, 55 and 56 is inevitable.

Re claims 65, 66-67, 68 and 69, given Chien's plasma display panel device as discussed above in claims 25, 26, 27, 29 and 31, the drive method for a plasma display panel device as claimed in claims 65, 66-67, 68 and 69 is inevitable.

Re claims 70, 71, 73, 74 and 75, given Chien's plasma display panel device as discussed above in claims 33, 34, 36, 37, and 38, the drive method for a plasma display panel device as claimed in claims 70, 71, 73, 74 and 75 is inevitable.

Art Unit: 2821

Re claims 76, 77, 78 and 79, given Chien's plasma display panel device as discussed above in claims 39, 40, 41 and 42, the drive method for a plasma display panel device as claimed in claims 76, 77, 78 and 79 is inevitable.

5. Claims 7, 11, 12, 17-24, 35, 49, 51, 52, 57-64 and 72 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fail to teach or suggest, alone or in combination, the following limitations:

(1) "wherein the change in the potential of the third electrode occurs (i.e., address electrode A_i) in a period equal to 80% of a time constant of the sustain discharge" as claimed in claims 7 and 49;

(2) "wherein T is in a range having a width of $\pm 20\%$ with respect to a reference value in a range of 250 nsec to 800 nsec" as claimed in claims 11 and 51;

(3) "wherein the voltage waveform applied to the electrode pair in the sustain period is a pulse waveform that alternates repeatedly between high and low potentials, the high periods being longer than the low periods, and the change in the potential of the third electrode occurs in a range of $T-0.25 \mu\text{sec}$ to $T+0.25 \mu\text{sec}$ after the voltage waveform applied to at least one of the first and second electrode begins to change" as claimed in claims 17 and 57;

(4) "wherein the voltage waveform applied to the electrode pair in the sustain period is a pulse waveform that alternates repeatedly between high and low potentials, the high periods being shorter than the low periods, and the change in the potential of the third electrode occurs in

Art Unit: 2821

a range of (i) T-0.05 μ sec to T 0.35 μ sec after the voltage waveform applied to at least one of the first and second electrode begins to rise, or (ii) T-0.45 μ sec to T-0.05 μ sec after the voltage waveform applied to at least one of the first and second electrode begins to fall” as claimed in claims 21 and 61; and

(5) “further detecting a temperature of the panel unit as the characteristic, and conduct the control based on the detected brightness average and temperature” in a manner claimed in claims 35 and 72.

7. Claims 12, 52, 18, 19, 20, 22, 23, 24, 52, 58, 59, 60, 62, 63 and 64, are objected to as being dependent over objected claims 11, 17, 21, 51, 57 and 61.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yamada (US 2004/0212568); and Hong (US 6,414,656); also teach similar inventive subject matter.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ephrem Alemu whose telephone number is (571) 272-1818. The examiner can normally be reached on M-F Flex hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don K Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

Art Unit: 2821

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EA
3/31/05



TUYET VO
PRIMARY EXAMINER